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Canadian Society of Civil Engineers.

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TRANSACTIONS.

N.B.—This Society, as a body, does not hold itself responsible for the facts and opinions stated in any of its publications.

THE STRENGTH OF CANADIAN DOUGLAS FIR, RED PINE, WHITE PINE AND SPRUCE.

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In the present Paper it is proposed to give a statement of the results which have been obtained up to the present time, from the numerous experiments which have been carried out in the Testing Laboratories, McGill University, on the strength of Canadian Douglas Fir, Red Pine, White Pine and Spruce.

These experiments, which have now extended over a period of more than two years, will still be continued, and it is hoped that the results will be set before the profession in a Paper on some future occasion.

In order that the subject may be treated in as comprehensive a manner as possible, the engineers and lumber merchants, who must necessarily be most particularly interested, are earnestly requested to give their co-operation. They can render valuable service by sending to the University Laboratories timbers of any and all sizes. These timbers should, in each case, be accompanied by a history giving the treatment of the timber from the time when the tree was felled, as, for example, the locality in which the tree grew should be specified, the manner in which the log was brought to the mill, the length of time during which it was kept in water (salt or fresh), the time during which it was kept in the pile at the mill, and, if the timber has already been in service, the length of this service. Any other details respecting the history of the timber may also be given, so that the information may in every case be as complete as circumstances will permit.

The attention of members is specially directed to the tables showing the deflection of beams under transverse loading, and also to tables showing the extension of specimens under direct tension.

These tables tend to prove conclusively the statement made by the author many years ago, i.e., that timber, unlike iron and steel, may be strained to a point near the breaking point without being seriously injured. It will be observed that in almost all cases the increments of deflection and extension, almost up to the point of fracture, are very nearly proportional to the increments of load, and it seems impossible to define a limit of elasticity for timber. This probably accounts for the continued existence of many timber structures in which the timbers have been and are still continually subjected to excessive stresses, the factor of safety being often less than 1½. Whether it is advisable so to strain timber is another question, and experiments are still required to show how timber is affected by frequently repeated strains.

TRANSVERSE STRENGTH.

The following Table gives in inches the distances between the centres of the end bearings (l), the mean depths (d) and the mean breadths (b) of the Beams I to LXI referred to in this Paper:—

Beams	I	II	III	IV	V	VI	VII
l	96	66	66	69	69	69	69
d	12.125	12.125	6.375	9.125	9.125	6.125	6
b	9	5.625	4.25	5	5	6	5.8125